



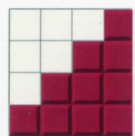
MATRIX
SERIES

Introducing the UPS to build your business on...




3000 & 5000VA MODULAR POWER PROTECTION FOR YOUR DATACENTER...BY

American Power Conversion
APC



New Matrix™ UPS is

When mission-critical applications like file servers, midrange systems and telecom equipment are on the line, you need a UPS that can take care of your loads *and* take care of itself.

Introducing new Matrix, advanced modular UPS protection from APC. With an innovative "100% uptime" design, Matrix means high reliability, low operating costs, and manageability that will defend both your datacenter and your bottom line. 

Small footprint and low weight (each component can be shipped via Federal Express) means Matrix can be hot-swapped out by even untrained personnel without the cost or delays of a service call.



expandable...

Matrix' SmartCell battery packs are connected in parallel for maximum security. In many other UPSes, batteries are connected in series: when one battery fails all are rendered useless.

Replacing a dead battery often means the hassle and expense of replacing the whole string.

Many UPSes predict runtimes on a theoretical model which does not take into account discharge duty, age of the batteries, etc. The result? You may not have the runtime the unit says you do. In contrast, Matrix tracks a unit-specific history of actual discharges. Greater accuracy means no unexpected surprises.

Unlike designs where the batteries are packaged in the same enclosure with heat dissipating chargers and inverters, SmartCells last longer because they operate at room temperature. Instead of two or three replacements, SmartCells may need replacement only once during the UPS's service life.

Replacing or adding SmartCells is easy. Simply unplug the bad battery pack, disconnect the RJ-11 signaling cable and plug in a new SmartCell.

A microprocessor in each SmartCell automatically monitors the operation of the battery and warns you of diminished capacity. Warnings are delivered via the front control panel, via indicators on each SmartCell, and via monitoring software.

- Add SmartCells for hours or days of extended runtime
- Separate enclosures mean long battery life
- Parallel-connected SmartCells require no maintenance

SMARTCELLS INCREASE UPTIME AND REDUCE COSTS

With most large UPSes, battery replacement is neither quick nor easy. Special shipping is required for heavy batteries. Safe disposal procedures must be followed. Mean time to repair can last weeks or even months.

In contrast, SmartCell replacement takes minutes. New SmartCells can be stored or overnighted on-site. Worn modules are simply returned to APC in the replacement SmartCell's packaging.

In effect, an overnight courier can take the place of an expensive service contract.

...and solves the power p

MATRIX IS DESIGNED FOR DOWNSIZING

Matrix is strong enough to handle all the problems your equipment is likely to experience (today and tomorrow), smart enough to provide network management tools to make your job easier, and stingy enough to protect your investment with customizable product and service options.

Downsizing means more and more unattended systems, so Matrix allows full SNMP and local control to keep data safe.

Downsizing means a mixed bag of midrange, PC, and telecom equipment, so Matrix offers full capacity in every served voltage, as well as upgradeable options.

Downsizing means good-bye to the glasshouse, so Matrix provides full environmental monitoring capabilities so you're alerted whenever ambient conditions go out of bounds.

Downsizing means attention to the bottom line, so Matrix delivers lifecycle costs half that of competitive brands.

And downsizing means a slew of new power problems to contend with, so Matrix eliminates threats from PC-induced harmonics, offers full compatibility with power-factor corrected PC's, and outperforms the competition in deep "rolling-brownout" brownout protection.



Matrix is sized for multiple server and midrange applications, including the IBM AS/400 series.

Hand-pluggable connectors make installation and service quick and easy.

Matrix's multi-stage surge suppression is backed by APC's ABSOLUTE \$25,000 Downstream Protection (see policy).

Screw-on cable plates prevent accidental disconnections.

Using FineLine™ microprocessor-based voltage regulation in adaptive mode, Matrix can learn the power characteristics of your site, then model its transfer behavior to maximize protection of your equipment and minimize unnecessary battery usage.

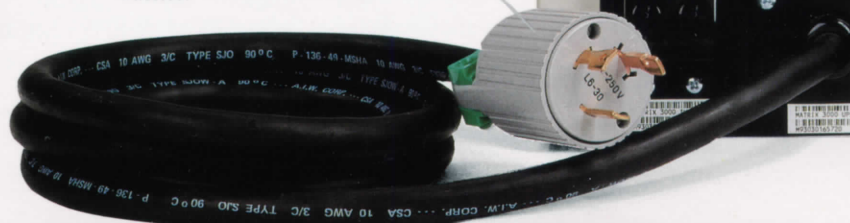
Many major server manufacturers intend to offer future systems with power factor corrected power supplies which are incompatible with ferroresonant UPS systems. Matrix has been designed in anticipation of this trend, and supports both corrected and non-corrected PC's.

Circuit breaker overload protection means no fuse replacement hassles.

Master activation switch is protected against accidental power downs.

Unlike competitive units which may require a dedicated new four-line wire to your site, Matrix uses the same three-line input as found on standard 208V equipment so there's no re-wiring costs or hassles.

An optional (available managers or system addition, configured systems vi



CAUTION:
DO NOT USE IN A CONTROLLED ENVIRONMENT.
REFER TO MANUAL FOR ENVIRONMENTAL
CONDITIONS.
DO NOT DISUSE IN ATMOSPHERE CON-
TAINING OZONE-DEPLETING SUBSTANCES.
RISK OF
FIRE
IF
NOT
USED
PROPERLY

problems of the 90's...

Internal modem (04 1993) notifies of power events failure. In the modem can be to power-up phone.

Smart serial interface means your site's power quality can actually be monitored and events can be logged automatically. Using APC's PowerDoctor, PowerChute plus, or SNMP adapter, you can get ongoing evidence of your ROI. Perform remote server reboots with PowerChute plus power management software for Novell, OS/2, Unix, and more.

RJ-11 communication jacks allow each SmartCell to report its status to the electronics module.

Unlike competitive UPSs that can't deliver full rated load in either 120 or 208, Matrix gives users 100% of capacity in either 120, 208 or any mixture of each, even while in bypass mode. So as 208V midrange users move to 120V LANs, there's no need to call the UPS factory for an expensive upgrade.

Emergency Power off input meets facility safety requirements

Upgradeable plug panel protects your investment. Panel options can be easily swapped out, with no need for a factory upgrade. Shown is the 3kVA domestic panel. Call APC for details on other domestic and international options.

Matrix's Neutral Regeneration design removes dangerous harmonic currents from the neutral wire and offloads them to the hot wire, eliminating overloaded neutral fire hazards as your PC installed base grows.

Versions of Matrix can be programmed to output 220, 230, or 240 VAC, easing the specification process for large multinational companies and users who may need to move equipment internationally.

Matrix's isolation module provides full line conditioning, meeting Novell's approval for network protection without the need for additional external conditioners.

- Compatible with power-factor corrected PC's
- Eliminates harmonic overloads on the neutral
- Standard 3-wire 208V input means no re-wiring hassles
- Line-interactive design means high-reliability, low operating costs
- \$25,000 ABSOLUTE Downstream Protection Policy
- No need to oversize for inrush means you buy only the VA you need

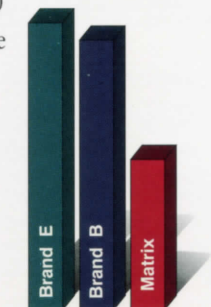
THE LINE-INTERACTIVE ADVANTAGE

Matrix's line-interactive design delivers zero-transfer time and deep brownout protection with 75% fewer components than traditional double conversion designs. Fewer components means better efficiency, and far greater reliability.

There is no need to oversize for inrush current, so you pay for only the power rating you need.

Moreover, Matrix is 93% efficient at full load, while traditional on-line products are only 70% to 80% efficient. This excess heat not only wastes energy and reduces battery life, it may also create a need for special air conditioning.

Over its lifetime, a 5kVA Matrix may cost approximately \$900 in electricity to run, while competitive brands approach \$3000. Matrix's high efficiency means minimal wasted energy, dramatically reduced lifetime costs, and long battery life.



5kVA 5-Year Lifecycle Costs

manageable...

SmartCell replacement date may be stored in the UPS's memory for future reference via the remote interface or by the front panel controls, providing you with ongoing peace of mind despite inevitable staff turnover. Each Matrix can also be assigned a unique ID and network address, easing wide-area management and control.

- Auto-shutdown support of all major network, midrange OS
- SNMP ready
- Multiple server software support
- Environmental monitoring via Measure-UPS

FULL SOFTWARE COMPATIBILITY WITH ALL POPULAR NETWORKS

The Matrix product line is fully compatible with APC's PowerChute family of power management software and interface kits, for major network operating systems, including NetWare, Unix, LAN Manager, OS/2 and more.

For convenience and control, operating parameters can be adjusted via APC software to fit any application. Settings are permanently stored in Matrix's memory.

MULTIPLE SERVER, MIDRANGE AND SNMP SUPPORT

Matrix is specifically designed for multiple server use. Using a 'master/slave' approach, Matrix and PowerChute v. 4.0 and up enables all 'slave' servers attached to the 'master' UPS/server combination to receive automatic shutdown commands,

slashing interface costs and cabling headaches. Matrix also supports interfaces to all major midrange operating systems, including OS/400 and VAX/VMS.

In addition, Matrix supports Simple Network Management Protocol (SNMP) via APC's SNMP Adapter, delivering warnings regarding power events and UPS status to any NMS whether the Matrix unit is located 20 feet or 2000 miles away.



A wealth of UPS operating data and power events status is available via Matrix's password-protected control panel (viewable in four languages). Virtually all functions of the UPS can be controlled via the panel or software.



While competitive units often demand annual service contracts of almost \$1000, Matrix is a zero maintenance solution. Using APC's SNMP Adapter, you can actually use Matrix to reduce support costs through remote management of your network.

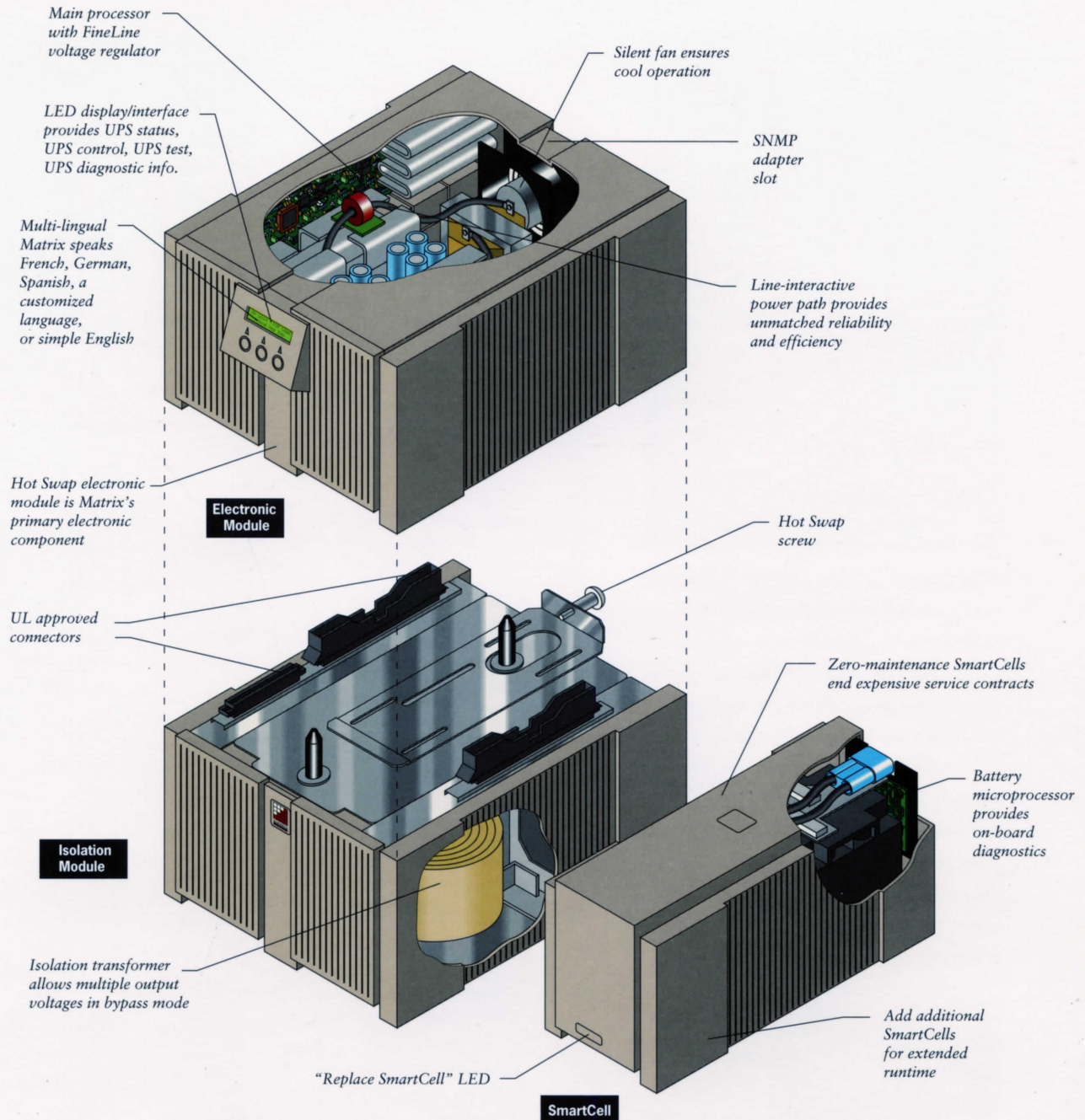


Matrix supports APC's Measure-UPS which meters temperature and humidity, and monitors contact closure inputs from smoke, fire, water, and security detectors.

Matrix offers a self test after turn-on, and programmable self-tests via APC's PowerChute software, but may also be set to test itself automatically at 7 or 14 day intervals for maximum peace of mind. A full suite of test and tracking procedures are available from your keyboard.



modular...



Hot-swappable modularity means 100% uptime

In many existing mid-sized UPSs, a small internal failure can bring down the whole UPS, which then brings down all of the loads. Matrix solves this problem with a completely modular design. Component failures are isolated to their 'block' which can be quickly diagnosed and cost-

effectively swapped-out, even while the protected system is still up and running.

Beyond its superior reliability, this modular approach also helps deliver lifetime costs half that of other brands.

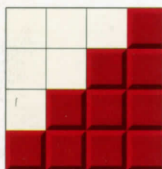
A basic Matrix unit is made up of an isolation module, an electronics module, and external SmartCell battery packs.

Unlike conventional UPS designs in which the load is at the mercy of a battery

with a three year lifespan, Matrix moves the weak link to the isolation unit, the component least likely to fail.

Moreover, the modular Matrix can be safely swapped-out or repaired on-site by an untrained employee without interrupting power to the loads.

This reduces Mean Time to Repair (MTTR) from a matter of days or weeks to a matter of minutes.



Specifications subject to change without notice.

* Matrix 5000 derated to 4700 VA / 3750 W when configured for 208 Vac.

OPERATION	MATRIX 3000	MATRIX 5000				
Topology	Line Interactive					
Power capacity *	3000VA/2250W	5000VA/3750W				
Galvanic Isolated Bypass	yes					
Compatible w/PFC	yes					
Nominal 1* input voltage, frequency	208/240 Vac, 60 Hz OR 208/220-240, 50/60 Hz					
Input voltage range (% of nominal) for mains operation	-25% to +15%					
Input frequency range (% of nominal) for mains operation	+/- 5%					
Efficiency at full load, on line thermal dissipation (BTU/hr)	>93%, 540	>93%, 900				
Nominal output voltage - 208/240 Vac, 60 Hz versions	120 Vac and 208 Vac; or 120 Vac and 240 Vac					
Nominal output voltage - 208/230 Vac, 50/60 Hz versions	120 Vac and 208 Vac; or 230 Vac					
Output voltage regulation	+/- 5%, adjustable					
Output voltage distortion (on-battery)	<5% THD					
Output frequency regulation	synchronized, 0.1 % of nominal during mains failure					
Typical transfer time	0 ms					
Normal mode let-through voltage percentage of applied 6 kV IEEE 587 (ANSI C62.41) Category A, B test surge	<0.4%					
Common mode let-through voltage	<0.4%					
Normal mode (Common mode) EMI/RFI noise attenuation range over 100 kHz to 30 MHz range	60 - 80 dB (80 - 100 dB)					
SMARTCELL BATTERY SYSTEM						
Individual pack voltage and current monitoring	self diagnostic, replace battery warning indicator					
Nominal battery system voltage	48 Vdc					
Method of replacement	hand-pluggable, hot swappable					
Number of packs supplied (standard)	1 pack	2 packs				
Expansion capacity	unlimited					
Run time with supplied packs (full / half load)	7 / 18 min	8 / 20 min				
Recharge time with supplied packs	1.5 hr	3.0 hr				
FEATURES						
User display	programmable 2 x 16 character back lit LCD, 4 languages					
Intelligent Bypass	automatic upon failure or user switchable					
Intelligent Serial Interface	yes					
SNMP Capability	via APCSNMP Adapter					
Modem Control	via adapter					
Computer and network interface	OS/400, VAX, Novell, UNIX, LAN Manager, etc.					
Emergency Power Off (EPO) capability	input for external EPO closure					
208/230 Vac, 50/60 Hz version output voltage selection	user settable to 220, 230 or 240 Vac; frequency selection is automatic					
External Power Distribution Unit (PDU)	call for details					
Upgradeable plug options	yes					
Software configurable options	yes					
Automatic and requested self-tests	yes					
Adjustable warnings	yes					
Adjustable Sensitivity	High, low or adaptive via FineLine					
UPS-Link Control Language	yes					
Load Power and Voltage Meters	yes					
Intelligent Runtime meter	yes					
Environmental monitoring	via Measure-UPS					
ENVIRONMENT & PHYSICAL						
Operating ambient temperature	0 C to +45 C (32 F to 113 F)					
Operating ambient relative humidity	0% to 95%, non condensing					
Electromagnetic immunity	IEC 801-2, 801-3, 801-4, 801-5; severity level IV					
Audible noise	< 55 dBA					
UPS dimensions (Electronics and Isolation Modules mated)	27.3" H x 13.8" W x 17.8" D / 69.3cm x 35.1cm x 45.2cm)					
UPS Electronics Module weight - all versions	40 lb (18.1 kg)	45 lb (20.4 kg)				
UPS Isolation Module weight - 208/240 Vac, 60 Hz	104 lb (47.2 kg)	130 lb (59.0 kg)				
UPS Isolation Module weight - 208/230 Vac, 50/60 Hz	113 lb (51.3 kg)	146 lb (66.2 kg)				
SmartCell dimensions	9.1" H x 6.9" W x 17.8" D / (23.1cm x 17.5cm x 45.2cm)					
SmartCell weight	each 64 lb (29.0 kg)					
Safety approvals	UL per 1778, CSA per C22.2, TUV per IEC 950					
EMC verification	FCC, CDC, EN55022					
Warranty	2 years, \$25,000 ABSOLUTE Protection (see details)					
SIZING & RUNTIME	Load (VA)	# syst	Tot Load	Matrix	Typ. RT (min)	(2* std)
DEC Vax 4000-500	1140	2	2280	3kVA	12	30
DEC System 5500	1200	2	2400	3kVA	11	27.5
Compaq SystemPro	500	6	3000	3kVA	7	17.5
HP 9000 I50	1440	3	4320	5kVA	11	27.5
IBM AS/400	As Below		4476	5kVA	10	25
inc: 1 - 9406 F60 processor, 2 - 9337 DASD array, 1 - 7208 tape drive, 1 - 3477 display station						
IBM AS/400	As Below		1999	3kVA	13	32.5
inc: 1 - 9406 E45 processor, 1 - 9337 DASD array, 1 - 7208 tape drive, 1 - 3477 display station						
RS/6000 w/ 19" mon.	450	10	4500	5kVA	10	25
Compaq 386/33 w/VGA	300	15	4500	5kVA	10	25
Sun 3/280	1600	3	4800	5kVA	9	22.5
Sun 4/490	1100	4	4400	5kVA	11	27.5

RT is the run time with the standard number of battery packs (1 for the 3kVA, 2 for the 5kVA)*

(2*std) is the run time with twice the number of standard battery packs (2 for the 3kVA, 4 for the 5kVA)

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Specifications, support and service

With 1992 revenues of almost \$160 million (USD) and over 1,000,000 units in the field, APC has both the financial strength and the in-the-field experience to provide you with the best ongoing solutions to your power protection needs.

In fact, a recent issue of *LAN Times* concluded:

"It's no wonder the rest of the power protection industry considers APC the company to beat..."

Matrix is backed by a suite of service programs, including toll-free 24-hour, seven days a week technical support, warranty extension programs, a Compuserve forum, free software upgrades to registered users and more. See APC's Service Policy Manual for more details.

To learn more about Matrix and see why APC has won more performance awards than all other UPS vendors combined, call your APC reseller.

APC has won more performance awards than all other UPS vendors combined...

Matrix and other APC products are available from:

American Power Conversion

(800)800-4APC in USA and Canada
 (401)789-5735 World Wide
 Fax (401) 789-1631 World Wide
 132 Fairgrounds Rd, W. Kingston, RI 02892 USA

(+33)(1)64.62.59.00 in Europe
 4, rue St. Claire Deville, 77185 Lognes - FRANCE
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